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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,741

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EXAMINER

RAABE, CHRISTOPHER M

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,741	<b>Applicant(s)</b> HIGASHI ET AL.	
	<b>Examiner</b> CHRISTOPHER M. RAABE	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/20/06</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6,9,10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kramer et al. (USPN 4801846).

With regard to claim 6,

Kramer et al. disclose in at least figure 1, the tables and column 4 a metal halide lamp comprising an arc tube including an envelope (8) which is a translucent ceramic tube having a main tube in a center thereof and a pair of thin tubes on each side of the main tube, a light emitting material being enclosed in the envelope (8), wherein the light emitting material contains at least one rare earth metal halide selected from the group consisting of thulium (Tm), holmium (Ho) and dysprosium (Dy) along with a calcium halide having a composition ratio in a range of 5 mole % to 65 mole % to all metal halides enclosed in the envelope. The phrase " $p/36 \leq t_n < 1.5$  is satisfied, where  $t_n$  is a wall thickness (mm) of each thin tube and  $p$  is a bulb wall loading ( $W/cm^2$ ) at time when the metal halide lamp is lit" does not structurally distinguish the claimed invention over the prior art, as is required of apparatus claims.

With regard to claim 9,

Kramer et al. disclose the metal halide lamp of claim 6, wherein the light emitting material further contains at least one metal halide selected from the group consisting of cerium

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halides and praseodymium halides, having a composition ratio in a range of 0.5 mole % to 10 mole % to all metal halides enclosed in the envelope.

With regard to claim 10,

Kramer et al. disclose the metal halide lamp of claim 6, wherein the envelope is fabricated by integrally forming the central tube, the joining portions, and the thin tubes.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,3,5,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazawa (EP 1202324, hereafter Miyazawa EP).

With regard to claim 1,

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Miyazawa EP discloses in at least paragraphs 5-8 and the figures a metal halide lamp comprising an arc tube that includes: a translucent ceramic envelope having a central tube (1) having an inner diameter of 5.5 mm or more and two thin tubes (3) respectively connected to each end of the central tube (1) via joining portions (2); and electrode inductors, each of which has an electrode formed at a tip end thereof, is inserted into one of the thin tubes (3) with a clearance gap provided between the electrode inductor and the thin tube so that the electrode is disposed in a space surrounded by the central tube and the joining portions, and is sealed in the thin tube (3) at an end thereof opposite a central tube side, wherein in a cross section of the envelope along a plane including an axis in a longitudinal direction of the arc tube, and a curvature radius (R) of an inner surface of each boundary region between the central tube and the joining portions is in a range of 0.5 mm to 2.5 mm. While Miyazawa EP does not disclose the metal halide used, rare earth halides were well known to those of ordinary skill in the art at the time of the invention to provide lamps of high efficacy and color rendering index and therefore would have been obvious to the same to incorporate into the lamp of Miyazawa. Additionally, while Miyazawa EP does not disclose an angle  $\alpha$  formed by each straight-line section of an inner surface of the central tube and a straight-line section of an inner surface of a respective one of the joining portions to be in a range of  $85^\circ$  to  $115^\circ$ , given the figures and dimensions disclosed by Miyazawa EP, it would have been obvious to one of ordinary skill in the art at the time of the invention to produce a right-cylindrical tube for the sake of simplicity.

Claims 2,12,14,16 rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazawa (USPN 2002/0089286, hereafter Miyazawa US)

With regard to claim 2,

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Miyazawa US discloses in at least the figures and paragraphs 48-50,60 a metal halide lamp comprising an arc tube that includes: a translucent ceramic envelop including a central tube (1) having an inner diameter of 5.5 mm or more and two thin tubes (3) respectively positioned on each end of the central tube via joining portions (2), and electrode inductors, each of which has an electrode formed at a tip end thereof, is inserted into one of the thin tubes with a gap provided between the electrode inductor and the thin tube so that the electrode is disposed in a space surrounded by the central tube and the joining portions, and is sealed in the thin tube at an end thereof opposite a central tube side, and a taper section (4) is formed on an inner surface of each boundary region between the central tube and the joining portions, and in the cross section, a length of line segment AC and a length of line segment BC are respectively in a range of 0.5 mm to 2.5 mm when a boundary point between the inner surface of the central tube and the taper section is a point A, a boundary point between the inner surface of the respective one of the joining portions and the taper section is a point B, and an intersecting point of a straight line extending from the straight-line section of the inner surface of the central tube with a line extending perpendicularly from the point B toward the straight line is a point C. While Miyazawa US does not disclose the metal halide used, rare earth halides were well known to those of ordinary skill in the art at the time of the invention to provide lamps of high efficacy and color rendering index and therefore would have been obvious to the same to incorporate into the lamp of Miyazawa US. Additionally, while Miyazawa US does not disclose an angle  $\alpha$  formed by each straight-line section of an inner surface of the central tube and a straight-line section of an inner surface of a respective one of the joining portions to be in a range of  $85^{\circ}$  to  $115^{\circ}$ , given the figures and dimensions disclosed by Miyazawa US, it would have been obvious to one of ordinary skill in the art at the time of the invention to produce a right-cylindrical tube for the sake of simplicity.

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With regard to claim 3,14,

Miyazawa (EP,US) discloses the metal halide lamp of claims 1,2. While neither Miyazawa reference discloses the halide used, an alkaline earth metal halide was well known to those of ordinary skill in the art at the time of the invention to provide lamps of high efficacy and color rendering index and therefore would have been obvious to the same to incorporate into the lamp of Miyazawa.

With regard to claims 5,16,

Miyazawa (EP,US) discloses the metal halide lamp of claim 1,2, wherein the envelope is fabricated by integrally forming the central tube, the joining portions, and the thin tubes.

With regard to claims 11,12,

Miyazawa (EP,US) disclose a metal halide lamp recited in claim 1,2. While neither Miyazawa reference discloses a luminaire having a light fitting housing the metal halide lamp; and a lighting circuit for lighting the metal halide lamp, such a luminaire was well known to those of ordinary skill in the art at the time of the invention to provide illumination, and therefore would have been obvious to incorporate into the lamp of Miyazawa (EP,US).

Claims 4,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazawa (US or EP), in view of Takeji et al. (USPN 6724144).

With regard to claims 4,15,

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Miyazawa (EP,US) discloses the metal halide lamp of claim 1,2. While neither Miyazawa reference discloses the projection length of the electrode. Takeji et al. disclose in at least figure 2 and column 2 a projection length of the electrode is E (mm) and a minimum wall thickness of each boundary region between the joining portions and the thin tubes is tb (mm), each value for the projection length E and the minimum wall thickness tb is found within an area defined by lines connecting four points of (E, tb)=(0.5, 1.0), (0.5, 3.5), (5.0, 3.5), and (5.0, 0.5), increasing lamp life. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Takeji et al. into the lamp of Miyazawa (EP,US).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer et al ( as above) in view of Miyazawa EP.

With regard to claim 7,

Kramer et al. disclose the metal halide lamp of claim 6. While Kramer et al. do not disclose the radius of curvature of a rounded off portion, Miyazawa EP does disclose a rounded-off portion having a curvature radius in a range of 0.5 mm to 3.0 mm to be formed at a corner of each boundary between the main tube and the thin tubes, facing a discharge space, providing extended lamp life. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Miyazawa EP into the lamp of Kramer et al..

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer et al ( as above) in view of Miyazawa US.



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With regard to claim 8,

Kramer et al. disclose the metal halide lamp of claim 6. While Kramer et al. do not disclose a chamfer, Miyazawa US does disclose a corner of each boundary between the main tube and the thin tubes, facing a discharge space, to be processed to form a chamfer having respective dimensions in a direction parallel to an axis of the envelope and in a direction perpendicular to the axis in a range of 0.5 mm to 3.0 mm, providing extended lamp life. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Miyazawa US into the lamp of Kramer et al.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer et al. (as above).

With regard to claim 13,

Kramer discloses a luminaire comprising: a metal halide lamp recited in claim 6; a light fitting housing the metal halide lamp. While Kramer does not disclose a lighting circuit, such a device was well known to those of ordinary skill in the art at the time of the invention to provide controllable illumination and therefore would have been obvious to the same to incorporate into the luminaire of Kramer et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER M. RAABE whose telephone number is (571)272-8434.

The examiner can normally be reached on m-f 7am-3:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CR/

/NIMESHKUMAR D. PATEL/

Supervisory Patent Examiner, Art Unit 2879